

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2018
(First Semester)

Branch - **COMPUTER TECHNOLOGY**

DIGITAL ELECTRONICS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks **(10 x 1 = 10)**

- 1 Convert the decimal number 25 into an equivalent Binary number.
(i) 11000 (ii) 10111 (iii) 11001 (iv) 11100
- 2 Which code is used to find the one bit error?
(i) Error Detecting Code (ii) Parity Bit (Code)
(iii) Gray Code (iv) None of the above
- 3 Mention the name of the gate which is used for binary addition.
(i) XOR gate (ii) OR gate (iii) NOR gate (iv) NAND gate
- 4 Choose from the following, the universal gate is
(i) XNOR gate (ii) NOR gate
(iii) NOT gate (iv) XOR gate
- 5 What is name of the group which has four is horizontally or vertically adjacent in Karnaugh map?
(i) Pair (ii) Quad (iii) Octet (iv) None of the above
- 6 How to simplify the logical expression in Karnaugh map?
(i) By using overlapping groups (ii) By using rolling the map
(iii) By eliminating redundant groups (iv) All the above
- 7 Which gate is used for getting the difference output in half subtractor?
(i) AND gate (ii) XOR gate (iii) NOT gate (iv) OR gate
- 8 Multiplexer has
(i) Many input and one output with data
(ii) One input an many output with data
(iii) Many input and one output with data
(iv) One input and many output without data
- 9 Which flip flop gives toggle mode output?
(i) RS flip flop (ii) D flip flop (iii) T flip flop (iv) JK flip flop
- 10 What is the other name of MOD-10 counter?
(i) Ring counter (ii) Binary counter
(iii) Decade Counter (iv) None of the above

SECTION - B (25 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 5 = 25)

- 11 a Discuss about Binary Multiplication and Binary Division with example.
OR
b Explain the concept of Octal to Decimal and Octal to Binary Conversion with example.
- 12 a Explain the function of Two-input AND gate with its Truth Table.
OR

13 a Using Karnaugh Map simplify the following and draw the circuit
2(4,5,6,7,12,13,14,15).

OR

b Discuss about the Fundamentals of Boolean Algebra.

14 a Explain about the Half-Adder with neat diagram.

OR

b Write a note on floating point number system.

15 a Explain the operation of D Flip-Flop with truth table.

OR

b Discuss about the operation of ring counter.

SECTION -C (40 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 8 = 40)

16 a Summarise the points in the conversion of Binary to Decimal.

OR

b Differentiate between Error detecting code and Error correcting code.

17 a Outline the postulates of Boolean algebra.

OR

b Discuss the applications of XOR gate.

18 a Differentiate between Min terms and Max terms.

OR

b Trace the need for eliminating redundant groups.

19 a Examine the importance of Decoders and Encoders.

OR

b Distinguish between Multiplexers and demultiplexers.

20 a Examine: (i) RS flip flop (ii) JK flip flop

OR

b Differentiate between State diagrams and State tables.

Z-Z-Z

END